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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,217	06/11/2001	Ikuya Tsurukawa	206470US-2	9559

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EXAMINER	
ELKASSABGI, HEBA	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	09/877,217	TSURUKAWA ET AL.	
	Examiner	Art Unit	
	Heba Elkassabgi	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,3,10,12,18,20,23,26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA and further in view of Kalagidis (US Patent 3777367).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, and a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore, the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions

relative to the contact electrode pad. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees apart on the commutator at a third rotation position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode pad formed with a plan conductive layer.

Kalagidis discloses in the abstract a commutator (C) with a contact electrode part (B) formed with a plane conductive layer pattern (24-26) and connected to the rotor coils (not shown see abstract), the contact electrode part (B) and the plane conductive layer pattern (24-26) being directly formed on one surface of the electrical parts mounting base board (commutator) in order to improve the method of forming an improved commutator for dynamoelectric machines.

Since APA and Kalagidis are from the same filed of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious to one of ordinary skill in the a art to combine the DC motor structure of APA with Kalagidis's commutator in order to form an improved commutator for motors.

In regards to claims 20- 23 the examiner notes that the method of making are inherently included in the apparatus disclosed above.

Claims 2,8,13,17,21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA) and further in view of Kalagidis (US Patent 3777367) as applied to claims 1,12,20, and 23 above, and further in view of Suzuki (U.S. Patent 51 19466).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, and a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode pad are shifted in the radial direction. Furthermore the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees apart on the commutator at a third rotation

position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode pad formed with at plain conductive layer and a noise- suppressing element.

Kalagidis discloses in the abstract a commutator (C) with a contact electrode part (B) formed with a plane conductive layer pattern (24-26) and connected to the rotor coils (not shown see abstract), the contact electrode part (B) and the plane conductive layer pattern (24-26) being directly formed on one surface of the electrical parts mounting base board (commutator) in order to improve the method of forming an improved commutator for dynamoelectric machines.

Suzuki illustrates in Figure 3 a DC motor having a noise-suppressing element (lower case member which performs a function of an electromagnetic shield)(34) is provided on the electrical parts mounting baseboard (printed circuit boardll4o, in order to suppress noise produced in the direct current motor.

Since APA, Kalagidis, and Suzuki are from the same filed of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious to one of ordinary skill in the a art to combine the DC motor structure of APA with Kalagidis's commutator in order to form an improved commutator for motors and Suzuki's noise-suppressing element in order to suppress noise produced in the direct current motor.

In regards to claims 20- 23 the examiner notes that the method of making are inherently included in the apparatus disclosed above

Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA) and further in view of Kalagidis (US Patent 3777367) as applied to claims 1 and 12 above, and further in view of Ohtake et al. (U.S. Patent 5598045).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, and a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore, the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode pad. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees apart on the commutator at a third rotation position such that an angle formed between one rotation detecting brush.

However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode pad formed with a plan conductive layer and external terminals.

Kalagidis discloses in the abstract a commutator (C) with a contact electrode part (B) formed with a plane conductive layer pattern (24-26) and connected to the rotor coils (not shown see abstract), the contact electrode part (B) and the plane conductive layer pattern (24-26) being directly formed on one surface of the electrical parts mounting base board (commutator) in order to improve the method of forming an improved commutator for dynamoelectric machines.

Ohtake et al. discloses in Figure 1 a support base (case cap) (6) having to support the rotation shaft (12) of the rotor (5). Wherein, the electrode brushes (45), fixed to the support base (6) includes external terminals (pig-tail wires) (14), in order to provide external connection to the DC motor.

Since APA, Kalagidis, and Ohtake et al. are from the same filed of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious to one of ordinary skill in the a art to combine the DC motor structure of APA with Kalagidis's commutator in order to form an improved commutator for motors and Ohtake et al.'s structure of the support base with the brushes and terminals in order to provide an external connection to the DC motor.

Claims 5,9,7,11,15, 19,22,25,27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA) and further in view of Kalagidis (US Patent 3777367) as applied to claims 1,20, and 23 above, and further in view of Fassel et al. (U.S. Patent 4514670).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, and a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore, the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode pad. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees apart on the commutator at a third rotation position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in

contact with the rotational shaft and a commutator including a contact electrode pad formed with a plan conductive layer and external terminals.

Kalagidis discloses in the abstract a commutator (C) with a contact electrode part (B) formed with a plane conductive layer pattern (24-26) and connected to the rotor coils (not shown see abstract), the contact electrode part (B) and the plane conductive layer pattern (24-26) being directly formed on one surface of the electrical parts mounting base board (commutator) in order to improve the method of forming an improved commutator for dynamoelectric machines.

Fassel et al. discloses in Figure 1 a DC motor (2) in which at least one rotation detecting brush (not shown) is in sliding contact with the contact electrode part (sensing – resistor I8) of the commutator and configured to detect a signal on the commutator indicative of an operation of the DC motor and that at least one sliding contact position of the detecting means are arranged at a different distance that in order to have a cycling time or period of the undulation to be reversibly proportioned to the speed of the motor.

Since APA, Kalagidis, and Fassel et al. are from the same filed of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Kalagidis's commutator in order to form an improved commutator for motors and Fassel et al. brush in sliding contact with

the contact electrode part in order to have a cycle time or period of the undulation to be reversibly proportioned to the speed of the motor.

In regards to the method of making in claims 22,25,27,and 29 the claims are inherently included in the apparatus disclosed above.

In regards to claim 7, it would have been obvious to one having ordinary skill in the art at the time the invention was made to decide the angular position of the crushes in relation to the commutator, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claim 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA) and further in view of Kalagidis (US Patent 3777367) and Ohtake et al. (U.S. Patent 5598045) and Fassel et al. (U.S. Patent 4514670).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, and a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode pad of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore the electrode brushes are split into plural

separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees on the commutator at a third rotation position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode pad formed with a plain conductive layer and rotational brush in contact with the electrical pad, and a noise-suppressing element.

Kalagidis discloses in the abstract a commutator (C) with a contact electrode part (B) formed with a plane conductive layer pattern (24-26) and connected to the rotor coils (not shown see abstract), the contact electrode part (B) and the plane conductive layer pattern (24-26) being directly formed on one surface of the electrical parts mounting base board (commutator) in order to improve the method of forming an improved commutator for dynamoelectric machines.

Ohtake et al. discloses in Figure 1 a support base (case cap) (6) having to support the rotation shaft (12) of the rotor (5). Wherein, the electrode brushes (45), fixed to the support base (6) includes external terminals (pig-tail wires) (14), in order to provide external connection to the DC motor.

Fassel et al. discloses in Figure 1 a DC motor (2) in which at least one rotation detecting brush (not shown) is in sliding contact with the contact electrode part (sensing resistor I8) of the commutator and configured to detect a signal on the commutator indicative of an operation of the DC motor and that at least one sliding contact position of the detecting means are arranged at a different distance that in order to have a cycling time or period of the undulation to be reversibly proportioned to the speed of the motor.

Since APA, Kalagidis, Ohtake et al. and Fassel et al. are from the same filed of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Kalagidis's commutator in order to form an improved commutator for motors and Ohtake et al.'s structure of the support base with the brushes and terminals in order to provide an external connection to the DC motor and Fassel et al. brush in sliding contact with the contact electrode part in order to have a cycle time or period of the undulation to be reversibly proportioned to the speed of the motor.

Response to Arguments

Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new grounds of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heba Elkassabgi whose telephone number is (571) 272-2023. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for

unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Heba Y. Elkassabgi
United States Patent and Trademark Office
Patent Examiner
AU 2834
Class 310-Electrical Generator/Motor Structure
Class 290-Prime Mover Dynamo Plants

BURTON S. MULLINS
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